

WHAT IS CLAIMED IS:

1. A method of maintaining uniform temperatures on a heated laminator roller having a portion of the roll exposed between edges of a shield defining a slot, comprising heating the roller to a selected temperature related to a laminating temperature, and driving the roll at a selected speed continuously whenever the roller is to be used for laminating and is near or above the selected temperature.
2. The method of claim 1, wherein said shield comprises a metal shield, and the laminating roller has a portion protruding below a plane defined by the edges of the shield.
3. The method of claim 2 including driving the roller with a stepper motor.
4. The method of claim 1 and including passing a continuous web between the roller and a substrate, pressing the roller toward a substrate to press a film on the web onto the substrate for lamination, mounting the web onto at least one supply roll, and providing a circuit board having a memory on the interior of a core of the at least one supply roll, and maintaining the circuit board stationary while at least one supply roll moves around the circuit board.

5. The method of claim 1 including supporting the at least one roll on one end on a first tubular shaft for rotation, mounting a second stationary shaft on the interior of the tubular shaft, supporting the circuit board within the periphery of the core of the roll, and providing a third support shaft on the interior of the roll engaging the circuit board and shaft and rotating relative to the stationary shaft and the circuit board.

6. The method of claim 5 including providing a first resilient force on the one end of the at least one supply roll urging the at least one supply roll axially in a direction away from the first stationary shaft providing a second resilient force on the second shaft toward the circuit board, providing a third force on the third shaft toward the first tubular shaft and the second shaft.

7. An apparatus for connecting portions of a circuit board on an interior of a hollow core roller to at least one external contact, said roller having a first end rotatably supported on a frame, a tubular shaft supporting a second end of the roller for rotation relative to the frame and the tubular shaft having an end surface open to an interior of the hollow core roller, a spring exerting a load in an axial direction on the roller toward the first end of the roller, a circuit board supported on the interior of

the hollow core roller adjacent the second end of the hollow core roller, said circuit board having a plane that is generally perpendicular to an axis of rotation of the hollow core roller, a support axially fixed on the interior of the hollow core roller and spaced inwardly from the circuit board, a support slidably mounted on the interior of the hollow core roller to the interior side of the circuit board, a second spring loading the support toward the circuit board and stationary tubular shaft to engage the circuit board and urge the circuit board to engage the end of the tubular shaft to thereby effect a connection between a first contact region of the circuit board and the tubular shaft.

8.       The apparatus of claim 7, wherein there is a second shaft mounting on the interior of the tubular shaft and slidably mounted for at least limited axial movement, said second shaft having an end extendable outwardly from the end of the tubular shaft, a third spring urging the second shaft in a direction outwardly from the end of the tubular shaft toward the interior of the hollow core roller, and the support including a pilot shaft, the pilot shaft and the second shaft aligning along the axis of rotation of the hollow core roller, such that when the second spring urges the circuit board to engage the end of the tubular shaft, the second shaft engages the circuit board in a second contact region.

9. The apparatus of claim 8, wherein said support including the pilot shaft comprises a cage that slidably mounts on the interior of the hollow core roller, and the cage having supports spaced outwardly from and engaging peripheral edges of the circuit board to substantially contain the circuit board in the cage.

10. The apparatus of claim 8, wherein the first contact region of the circuit board comprises a ring contact of size to engage the end of the tubular shaft.

11. The apparatus of claim 8, wherein a central portion of the circuit board has an axial bore therein, a portion of the pilot shaft entering the bore to center the circuit board, and the circuit board center bore having a surrounding layer of metal forming the second contact region spaced from the first contact region, said second contact region being engaged by the second shaft when the circuit board is positioned to engage the end of the tubular shaft.

12. The apparatus of claim 8, wherein the first spring exerts a load in axial direction toward the first end of the roller and exerts the spring load at a first force greater than the spring load exerted by the second spring urging the circuit board toward the tubular shaft, and the third spring exerting a lesser

spring force urging the second shaft toward the circuit board.

13. The apparatus of claim 8, wherein said tubular shaft and said second shaft are insulated from each other, and are made of an electrically conductive material.

14. A heated roller and support for use in lamination, comprising a frame, said heated roller being rotatably mounted on said frame, a pair of shield members on opposite sides of said roller and extending along a longitudinal length thereof, said shield members being spaced apart along one side of the roller to leave a slot to which the roller is exposed, the roller extending partially through a plane defined by the shield members at the slot, the improvement comprising a drive for the roller that continuously rotates the roller at a selected speed when the roller is heated to a desired level.

15. The heated roller and support of claim 14, wherein the drive comprises a stepper motor.

16. The heated roller and support of claim 14, wherein a heater is mounted to heat the roller, a temperature sensor providing a signal indicating the temperature at a surface of said roller, a motor

control to start the motor when the temperature of the surface of the roller is above the desired value.

17. A laminator assembly comprising a housing, a support tray for supporting a disc for lamination by passing the disc below a film that is pressed against a surface of the disc for lamination, the tray including a center portion and an outer support portion having an upper support surface defining a support plane, the center portion defining a region recessed below the support plane, and an adjustable hub in the recessed region having at least two positions, wherein in a first position an upper surface of the hub is below the support plane of the tray, and in a second position the upper surface of the hub is substantially coplanar with the support surface.

18. The laminator of claim 17, wherein the tray has a plurality of support pads in the recessed region spaced annularly apart that are at a desired level, the hub having mating support pads that face downwardly toward the support pads of the tray, wherein when the selected support pads on the hub are overlying the support pads on the tray, the hub is in the second position and when the hub is rotated a selected amount different support portions on the hub are overlying the pads on the tray, and the hub is in the first position.

19. The laminator of claim 17, and a disc sensor in the recessed region of the tray, a pair of apertures in the hub, one of said apertures overlying the disc sensor in each of the two positions of the hub.

20. The laminator apparatus of claim 19, wherein the hub is made of a magnetic material, and a magnet on the tray to create a magnetic force to attract the hub toward the tray.

21. The laminator of claim 18, and a first separate support layer on the tray in portions surrounding the recessed region, and a second separate support layer on the hub.